

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

COVER CROP

(Acre)

CODE 340

DEFINITION

Grasses, legumes, forbs or other herbaceous plants established for seasonal cover and conservation purposes

PURPOSES

- Reduce erosion from wind and water
- Increase soil organic matter
- Manage excess nutrients in the soil profile
- Promote biological nitrogen fixation
- Increase biodiversity
- Weed suppression
- Provide supplemental forage
- Soil moisture management

CONDITIONS WHERE PRACTICE APPLIES

On all lands requiring vegetative cover for natural resource protection.

CRITERIA

General Criteria Applicable to All Purposes

Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths and planting methods will be consistent with local site conditions and the Colorado Cover Crop Specification Guide. The species selected will be compatible with the nutrient management and pest management provisions of the plan.

Cover crops will be terminated by harvest, frost, mowing, tillage and/or herbicides in preparation for the following crop.

Herbicides used with cover crops will be compatible with the following crop.

Cover crop residues shall not be burned.

If application of this practice will affect cultural resources (archaeological, historic, historic landscape or traditional cultural properties), follow NRCS national policy and Colorado operating procedures for considering cultural resources.

Additional Criteria to Reduce Erosion from Wind and Water

Cover crop establishment, in conjunction with other practices, will be timed so that the soil will be adequately protected during critical erosion period(s).

Plants selected for cover crops will have the physical characteristics necessary to provide adequate protection.

The amount of surface and/or canopy cover needed from the cover crop shall be determined using current approved erosion prediction technology.

Additional Criteria to Increase Soil Organic Matter

Cover crop species selected will have the potential to produce high amounts of plant biomass to maintain or improve soil organic matter.

The current approved soil conditioning index will be used to determine the amount of biomass required.

The cover crop will be terminated as late as feasible to maximize plant biomass and prepare the seedbed for the subsequent crop.

Additional Criteria to Manage Excess Nutrients in the Soil Profile

Cover crops will be established and actively growing before expected periods of high precipitation that can cause leaching.

Cover crop species will be selected for their ability to utilize large amounts of nutrients from the rooting profile of the soil. The aboveground biomass will be removed from the field for maximum nutrient removal efficiency.

Additional Criteria to Promote Biological Nitrogen Fixation

The specific Rhizobium bacteria will either be present in the soil or the seed will be inoculated at the time of planting legumes. Nitrogen credits from legume cover crops will be accounted for in the nutrient management plan.

Additional Criteria to Increase Biodiversity

Select cover crop species that have different maturity dates, attract beneficial insects, serve as a trap crop for damaging insects and/or provide food and cover for wildlife.

Additional Criteria for Weed Suppression

Select cover crop species for their chemical or physical competition with weeds. Cover crop residues will be left on the soil surface to maximize allelopathic (chemical) and mulching (physical) effects. For long-term weed suppression, select perennial and/or biennial species.

Additional Criteria to Provide Supplemental Forage

Species selected will have desired forage traits, be palatable to livestock and not interfere with the production of the subsequent crop. The cover crop may be hayed or grazed as long as sufficient biomass is left for resource protection.

Additional Criteria for Soil Moisture Management

Terminate growth of the cover crop sufficiently early to conserve soil moisture for the subsequent crop. Cover crops established for soil moisture conservation shall be left on the soil surface until the subsequent crop is planted. In areas of potential excess soil moisture, allow the cover crop to grow as long as possible to optimize soil moisture removal.

CONSIDERATIONS

The cover crop should be terminated as late as feasible to maximize plant growth and still prepare the seedbed for the subsequent crop.

Deep-rooted species provide maximum nutrient recovery.

Consider that grasses utilize more soil nitrogen and legumes utilize both nitrogen and phosphorus.

Avoid cover crop species that attract potentially damaging insects.

Cover crops are most effective when plant density is at least 25 stems per foot, combined canopy and surface cover is at least 60 percent, and the above ground (dry weight) biomass production is at least 2700 pounds per acre.

Cover crops may be used to improve site conditions for establishment of perennial species.

PLANS AND SPECIFICATIONS

Plans and specifications shall be prepared for each field or treatment unit according to the Criteria, Considerations and Operation and Maintenance sections of this standard.

Specifications shall describe the requirements for applying this practice to meet the intended purpose.

Plans shall include recommended seedbed preparation, species selection, seeding rates and dates, planting depth, establishment procedures, anticipated nutrient requirements and management and incorporation information as applicable.

Specifications shall be recorded on approved specification sheets, job sheets, narrative statements in the conservation plan or other acceptable documentation.

OPERATION AND MAINTENANCE

Control growth of the cover crop to reduce competition from volunteer plants and shading.

Control weeds in the cover crop by mowing or herbicide application.

REFERENCES

Colorado Field Office Technical Guide, Section I. Plant Materials Technical Note No. 59. 2002. Plant Suitability and Seeding Rates for Conservation Plantings in Colorado. USDA, Natural Resources Conservation Service. Lakewood, CO.

Colorado Field Office Technical Guide, Section I. Agronomy Technical Note No. 78 (revised). 2001. Nutrient Management Planning Guidelines. USDA, Natural Resources Conservation Service. Lakewood, CO.

Colorado Field Office Technical Guide, Section I. Agronomy Technical Note No. 81. 1992. Residue Cover as Affected by Tillage. USDA, Natural Resources Conservation Service. Lakewood, CO.

Colorado Field Office Technical Guide, Section I. Agronomy Technical Note No. 79 (rev. 2). 1992. Crop Residue Production and Management for Resource Protection. USDA, Natural Resources Conservation Service. Lakewood, CO.

Colorado Field Office Technical Guide, Section I. Agronomy Technical Note No. 52. 1977. Soil Conditioning Indices for Irrigated Crops of Colorado. USDA, Natural Resources Conservation Service. Lakewood, CO.